

# United States Patent [19]

Roncero

[11] Patent Number: 4,843,801

[45] Date of Patent: Jul. 4, 1989

[54] METHODS AND APPARATUS FOR  
OPENING CLOSED CONTAINERS

[75] Inventor: Jose I. Roncero, Richmond, Va.

[73] Assignee: Philip Morris Incorporated, New  
York, N.Y.

[21] Appl. No.: 198,497

[22] Filed: May 25, 1988

[51] Int. CL<sup>4</sup> ..... B65B 43/26

[52] U.S. Cl. ..... 53/492; 53/381 R;  
414/411

[58] Field of Search ..... 53/381 R, 492; 414/411,  
414/412, 414

[56] References Cited  
U.S. PATENT DOCUMENTS

2,540,766 2/1951 Stilwell et al. .... 414/414  
3,263,843 8/1966 Grahn et al. .... 414/412  
3,386,320 6/1968 Pinkham et al. .... 414/412  
3,889,442 6/1975 Grahn et al. .... 53/492  
4,036,380 7/1977 Berry et al. .... 414/412  
4,124,969 11/1978 Peyton .... 414/411

Primary Examiner—John Sipos

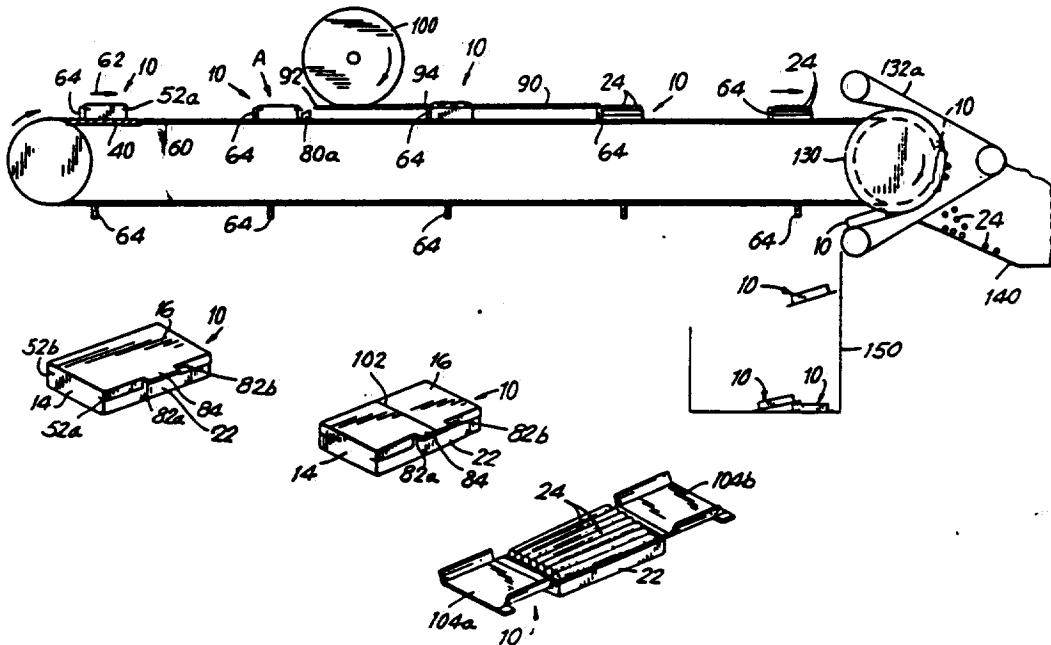
Assistant Examiner—Ann Tran

Attorney, Agent, or Firm—Robert R. Jackson

[57] ABSTRACT

Methods and apparatus for opening containers such as cigarette packages without damaging the contents of the containers. If desired, the methods and apparatus may be extended to include emptying the containers after they have been opened.

23 Claims, 10 Drawing Sheets



2021391734